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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,981	03/01/2002	Stefan Jansen	042933/305181	2225

25181 7590 07/19/2006

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EXAMINER

WIMER, MICHAEL C

ART UNIT PAPER NUMBER

2821

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/084,981	Applicant(s) JANSEN, STEFAN	
	Examiner Michael C. Wimer	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-36 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

Allowable Subject Matter

1. Applicant is advised that the Notice of Allowance mailed April 3, 2006 is vacated. If the issue fee has already been paid, applicant may request a refund or request that the fee be credited to a deposit account. However, applicant may wait until the application is either found allowable or held abandoned. If allowed, upon receipt of a new Notice of Allowance, applicant may request that the previously submitted issue fee be applied. If abandoned, applicant may request refund or credit to a specified Deposit Account.
2. Prosecution on the merits of this application is reopened on Claims 1-4 and 6-36 considered unpatentable for the reasons indicated below:
3. The indicated allowability of Claims 1-4 and 6-36 is withdrawn in view of the newly discovered reference(s) to Kane et al. (6057803) Alford (2501430). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 1-4 and 6-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kane et al. (6057803) in view of Alford (2510430).

Regarding Claims 1-4 and 6-36, Kane et al. schematically show in Figures 3a,3b,3c and 3d, 4a and 4b, examples of types of antenna used in their

invention. Specifically, Fig. 3(d) shows an inverted F-type antenna 36 as recited in the preamble of Claim 1. Regarding Claim 17, Kane et al. also state that the antennas therein may be employed in radio mobile telephones, at col. 1, lines 5-14.

Kane et al. suggest in the paragraph bridging columns 11 and 12 that a plurality of antenna devices 281,282 and 283 may be disposed in a layer in a direction vertical to a reference plane. Figure 28(a) shows such an arrangement in schematic form. Feeding taps and grounding taps are shown connected to each antenna device and are respectively connected to a feeding terminal 287 and a common ground point/terminal. Figure 29 shows a pictorial view of an antenna device formed as an element from conductor patterns 292,293 on a plurality of layers including one buried layer 293 of a multilayer PCB, in a stacked relation and interconnected through the PCB using a via 294 connected to the patterns 292 and 293. Although C-shaped or open loop conductor patterns are shown in Figures 28 and 29, no F-shaped pattern is shown. Kane et al. do suggest in col. 6, lines 4-14 that examples of antennas applicable to the invention are also applicable to subsequently-described embodiments of the invention. From this suggestion, a skilled artisan would have found it obvious that the inverted F-type antenna 36 in Fig. 3(d) is applicable to the seventeenth embodiment of the invention shown in Figures 28(a) and Fig. 29. However, Fig. 29 shows the multilayer PCB patterns obliquely arranged and although Fig. 28(a) shows the patterns aligned, it is uncertain if an upright of inverted F-type patterns would be

coextensive with the upright of adjacent patterns. Thus, the patent to Alford is cited as evidence of obviousness and as resolving the level of ordinary skill in the antenna art and shows in Fig. 3, a stacked relationship of elements, where the uprights are coextensive with adjacent elements. A skilled artisan therefore would have found it obvious to employ the vertically aligned uprights of each adjacent antenna element in the multilayered PCB version of Kane et al. and forming those elements as inverted F-type, where their uprights are coextensive. The elements 5-7 in Fig. 3 of Alford form a single antenna element equivalent to the single element in Fig. 2 thereof.

Regarding Claims 2,6,18 the patterns are at the edge of the PCB.

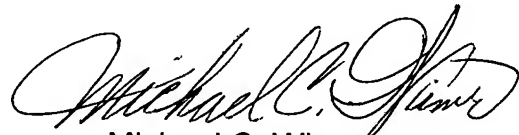
Regarding Claims 3,7,19,20 the PCB in Fig. 29 of Kane et al. is apertured at 294 adjacent the element 292 and 293.

Regarding Claims 9-16 and 22-32, Kane et al. teach the use of a ground plane (see Claim 2) facing the antenna and the apertures defining the common vias between board layers are connected to the ground plane.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Wimer whose telephone number is (571) 272-1833. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun O. Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Michael C. Wimer", is positioned above the printed name.

Michael C. Wimer
Primary Examiner
Art Unit 2828

MCW
6/19/2006